

blooming period when collected June 19, only a few flowers remaining on occasional plants. The specimen collected by Williams has both flowers and mature fruit; that collected by Barneby has only fruits. The plants from Wyoming appear to have a tendency toward a more exerted inflorescence than those from Colorado, but this may be due to a habitat difference since there is little else to distinguish them.

The writer is indebted to Mr. R. C. Barneby for making his collection available for study, thus adding to our knowledge of the known range of the species.

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REVIEW

Los Juniperus Mexicanos. BY MAXIMINO MARTÍNEZ. Tom 17, Anales del Instituto de Biología de la Universidad Nacional de México, México, D. F., 1946. 128 pp., 108 figs., paper cover.

A few months ago, in reviewing Professor Martínez's book on the genus *Pinus* in Mexico, I expressed the hope that he would continue to produce papers of comparable excellence. In issuing the above paper on the genus *Juniperus* in Mexico he has fulfilled that hope.

The first twenty-four pages of the paper are utilized in discussing the general characteristics of the genus and its representatives in Mexico; a few paragraphs on the qualities of the lumber produced by Mexican junipers; the vegetational zones in different parts of the country; the subgeneric classification; and several lists of species and lower entities based on such characters as size of fruit, number of seeds and nature of the bark. This is followed by a key to the species and full descriptions of the entities recognized, together with citations of references and specimens examined.

Prior to 1944 only four species of *Juniperus* had been recognized as occurring in Mexico. In this paper Professor Martínez accepts twelve species, six varieties, and three formas. All of these fit into Spach's section *Sabina*, and Martínez has distributed them among five subsections, the *Flaccidae*, *Deppeanae*, *Jaliscanae*, *Monticola*, and *Monospermae*. Of this number, four species (*J. jaliscana*, *Blancoi*, *durangensis*, and *Patoniana*); six varieties (*J. jaliscana* var. *typica* and var. *poblana*, *J. Deppeana* var. *robusta* and var. *zacatecensis*, *J. monosperma* var. *gracilis*, and *J. erythrocarpa* var. *coahuilensis*); and three formas (*J. Patoniana* forma *obscura*, *J. monticola* forma *compactum* and *J. monticola* forma *orizabensis*) are described as new. One new combination and one new name also are proposed. Two other species, *J. Gamboana* and *J. comitans* had been described by Professor Martínez in 1944.

He cleared up a puzzle centering around *Cupressus thurifera* H. B. K. This species was known only from the type collection. Professor Martínez reasoned that since no specimens, other than the type, existed in any herbaria, and since no *Cupressus* was known to grow in the area from which the type of *C. thurifera* had come but "an abundance" of *J. flaccida* var. *poblana* occurred in this region, probably *C. thurifera* was *J. flaccida* var. *poblana*. This shrewd guess was completely confirmed when he examined the type of *C. thurifera*! The latter, therefore, becomes a synonym under *J. flaccida* var. *poblana*.

The paper is nicely illustrated with 108 "figures," many of which could easily have been classified as "plates" for they are made up of a number of line drawings, each separate drawing bearing a subnumber that corresponds with the numbered explanations of the figures. Over one-third of the figures are half-tone reproductions of photographs showing the general habit, character of the twigs, leaves and fruit or the nature of the bark on the mature trunks. The line drawings accurately depict the shape, arrangement and size of the leaves and fruit and the presence or absence of glands on the leaves. These drawings are refreshingly simple and accurate, without shading and clearly show the critical character.

Under each subsection Professor Martínez includes a schematic chart representing the "supposed relations" among the entities included. These charts express his ideas of the probable relationships, based wholly upon his field observations and his herbarium studies. Limits of time and funds precluded the tedious and very slow experimental type of nursery work that could give more definite criteria on the phylogenetic lines along which the Mexican junipers have developed.

The paper constitutes a substantial contribution to our knowledge of the genus *Juniperus* as it occurs in Mexico. The format and typography are good. The paper used is glazed so both the half-tones and the line drawings are reproduced clearly. This is another paper written by Professor Martínez for which we may sincerely thank him. It is one that will be valuable to any botanist interested in the flora, and particularly one interested in the gymnosperms of Mexico.—IRA L. WIGGINS, Stanford University, California.